Remarks/Arguments

Applicant has received the Office Action dated March 17, 2005, setting a three month shortened statutory period for response ending June 17, 2005. Claims 1, 3-7 and 22-29 remain pending. Claim 2 has been canceled without prejudice, and claims 22-29 are newly presented.

In paragraph 4 of the Office Action, the Examiner rejected claims 1-3 under 35 U.S.C. 103(a) as being unpatentable over Sides et al. (US 4,805,441) in view of Phillips et al. (US 5,196,039). The Examiner states that Sides et al discloses a fluid analyzer having a pump, a concentrator connected to the pump, and a separator connected to the concentrator, wherein the concentrator has a temperature controlled heater controlled by a controlling mechanism connected to the elements, wherein the heater operates on a tube/channel.

The Examiner concedes that Sides et al do not expressly disclose a fluid analyzer having a continuous heater film in the channel. However, the Examiner states that Phillips et al. disclose a fluid analyzer having many of the recited elements including a concentrator having a heater that comprises a "thin electrically conductive film" or "conductive wall tubes" wherein the resistance may be varied by varying the thickness of the electrically conductive film, and a "thermal gradient in time" can be created by varying the electric current through the electrically conductive film as a function of time, and thus capable of moving temperature/heat/gradient zones wherein the rate of movement is approximately the same as the fluid moving through the channel.

The Examiner then concludes that it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a film heater as taught by Phillips et al., modifying the fluid analyzer of Sides et al., thus providing a fluid analyzer to provide

"thermal modulation to accumulate and focus, refocus then accelerate a concentration pulse in the carrier stream" without the loss of orthogonality.

Claim 1 has been amended to recite:

> 1. (Currently Amended) A fluid analyzer comprising:
> a pump;
> a concentrator <u>fluidly</u> connected to the pump; and
> a separator <u>fluidly</u> connected to the concentrator; and
> wherein the concentrator comprises[[:]] a channel[[;]] and a continuous heater film [[in]] <u>along</u> the channel<u>; and</u>
> <u>a controller coupled to the continuous heater film for generating a moving heat pulse in the heater film that moves down the heater film and thus the channel, the moving heat pulse defined by a peak temperature with lower temperatures both downstream and upstream of the peak temperature</u>.

As can be seen, claim 1 now recites a controller coupled to the continuous heater film for generating a moving heat pulse in the heater film that moves down the heater film and thus the channel, <u>the moving heat pulse defined by a peak temperature with lower temperatures both downstream and upstream of the peak temperature</u>. An illustrative moving heat pulse is shown in Figure 3 of the present specification.

Phillips et al. clearly does not disclose such a configuration. For example, Phillips et al. state:

> A thermal gradient along a chromatographic column or a stage of a thermal modulator may be created by varying the resistance of the thin electrically conductive film applied to the column or stage. The resistance may be varied by varying the thickness of the electrically conductive film. A thermal gradient in time may be created by varying the electric current through the electrically conductive film as a function of time.

(Phillips et al., column 12, lines 51-58). From this, Phillips et al. appear to contemplate two types of thermal gradients. The first is a retention thermal gradient that extends <u>along</u> the chromatographic column, and may be provided "by varying the resistance of the thin electrically conductive film applied to the column or stage". Phillips et al. state that the resistance may be

varied by "varying the thickness of the electrically conductive film." As can be seen, this type of thermal gradient is created along the length of the chromatographic column. (see also, for example, Phillips et al., column 11, lines 40-45).

The second type of thermal gradient is a retention gradient in time. As noted above, Phillips et al. state that a "thermal gradient in time may be created by varying the electric current through the electrically conductive film as a function of time." However, this only appears to contemplate moving the thermal retention gradient discussed above up (e.g. higher in temperature) or down (e.g. lower in temperature) with time. As can readily be seen, this does not disclose or suggest generating a moving heat pulse in the heater film that moves down the heater film and thus the channel, wherein the moving heat pulse is defined by a peak temperature with lower temperatures both downstream and upstream of the peak temperature, as recited in claim 1. For these and other reasons, claim 1 and dependent claims 3-7 are all believed to be clearly patentable over Sides et al. in view of Phillips et al. New claims 22-29 are also believed to be clearly patentable over Sides et al. in view of Phillips et al.

In view of the foregoing, all pending claims 1, 3-7 and 22-29 are believed to be in condition for allowance. Reexamination and reconsideration are respectfully requested. If the Examiner believes it would be beneficial to discuss the application or its examination in any way, please call the undersigned attorney at (612) 359-9348.

Respectfully submitted,

Dated: June 16, 2005

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